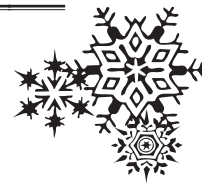




Missouri Department of Natural Resources

ENVIRONMENTAL EDUCATION COURSES

Fall / Winter 2004-2005



About Our Program

What's Available In This Issue ...

Courses:

- Archaeology of Missouri
- Igneous Geology
- Volunteer Water Quality Monitoring
- The Land in Literature
- Energy for Missouri
- A River of Words about Watersheds
- Teachers, Industry and the Environment (TIE)
- WET, WILD, WOODY
- Groundwater Issues

Other Workshops:

- Big River Educational workshops
- Project WET
- Announcements

The Missouri Department of Natural Resources offers ten environmental education courses for teachers during the 2004-2005 fall and winter seasons. Registered participants may choose topics on: archaeology; igneous geology; Project's WET, WILD and Learning Tree; Volunteer Water Quality Monitoring; environmental literature; energy issues; groundwater; and the Teachers Industry and Environment (TIE) Conference. These courses include background information, suggested teaching strategies, student activities and Show-Me Standards correlations on the selected topic. In addition to the listed courses, this schedule includes information about many other professional development opportunities.

Courses offer optional graduate credit with Lincoln University (LU) in Jefferson City or Central Missouri State University (CMSU) in Warrensburg. Tuition for the courses through LU will be \$60 per semester hour. Tuition for the one-hour course through CMSU was not determined at the time of publication. **Enrollment for college credit and payment of tuition fees will be handled at each course.**

The registration fees cover miscellaneous expenses; there will be no charge for the Missouri Department of Natural Resources services.

To register for the courses, send a completed pre-registration form and the registration fee to the Missouri Department of Natural Resources, Outreach and Assistance Center, Environmental Education, P.O. Box 176, Jefferson City, MO 65102. Make a separate check for each course you will be attending, made payable to the name of that course. NO REFUNDS. A packet of course information will be mailed to each participant about 10 days before the course begins.

For more information on these courses, or for arranging faculty in-service training, write Joe Pitts, Jim Lubbers or Bryan Hopkins at the Missouri Department of Natural Resources, or phone 1-800-361-4827 or (573) 751-3443.

Please share this form with a colleague.



Environmental education staff focus on assisting teachers to enhance their students' proficiency in the knowledge, skills and competencies listed in the Show-Me Standards. The department's environmental education activities are correlated with the following standards:

Performance (Process) Standards

1.1, 1.2, 1.3, 1.4, 1.6, 1.7, 1.8, 1.10
2.1, 2.2, 2.3
3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 3.8
4.1, 4.4, 4.5, 4.6, 4.7

Knowledge (Content) Standards

SC1, SC3, SC4, SC5, SC7, SC8
SS2, SS3, SS4, SS5, SS7
MA1, MA2, MA3
CA3, CA4, CA6, HP6, FA4

Archaeology of Missouri

Course participants will discover the importance of accurately interpreting the past. This course is an introduction to Missouri archaeology using the cultural resources at Mastodon State Historic site. Topics will include basic archaeology, archaeologi-



cal methods, and the earliest evidence of humankind inhabiting Missouri. Course activities will include instruction in flint knapping and atlatl use with a tour of Mastodon State Historic Site and Cahokia Mounds Historic Site.

Course Information

Location: Mastodon State Historic Site, Imperial

Date: Oct. 2-3, 2004

College Credit: one hour (LU, fall semester, 2004, CED 482 G)

Fee: \$30 (includes field trip transportation)

Show-Me Standards: 1.2, 1.3, 1.7, 2.3, 3.2, 4.1, CA7, MA1, 2, 3, SC1, 3, 4, 7, 8, SS2, 5, 6, 7

Igneous Geology of the St. Francois Mountains

This field course focuses on the geology of the area with the oldest exposed rocks in Missouri. Participants will be able to collect igneous rock specimens. Topics will



include igneous geology, rock formation, mineral resources, land forms and rock identification.

The course will include geology field experiences at Johnson Shut-Ins State Park, Elephant Rocks State Park and a number of highway road cuts in the Pilot Knob area. Course sessions will be held regardless of weather and require a moderate amount of walking over rough terrain.

Course Information

Location: Pilot Knob

Date: Oct. 23-24, 2004

College Credit: one hour (LU, fall semester, 2004, CED 484 G)

Fee: \$30 (includes field trip transportation)

Show-Me Standards: 1.3, 1.6, 3.4, 3.5, SC1, 4, 5, 7, 8, SS2, CA3, 4, MA1

ATTENTION EDUCATORS

Educator resources are available on the department's Web site at www.dnr.mo.gov/teachers/. The department also recently created a broadcast e-mail list for educators. This list is designed for teachers and curriculum coordinators interested in areas like environmental sciences, geology, Missouri history, historic buildings, archaeology, energy efficiency and literature. Educators may subscribe for this free service at www.dnr.mo.gov/teachers/subscribe.htm. This new service will enable us to send you an electronic version of future course schedules. Please go to <http://www.dnr.mo.gov/teachers/subscribe.htm> to subscribe to this service.

In the future, subscribers to the service will be sent a message containing a web address through which they can access an on-line version of the course schedule. You will be asked to provide home address information along with your e-mail address so we may move toward electronic distribution of our schedule.

Subscribe today to insure you continue to receive notification of our environmental education courses and workshops. Please feel free to contact us if you have questions about this new service.

WET, WILD & WOODY (PLT)

This course is being offered in conjunction with the Missouri Environmental Education Association EE Campus professional development event (see www.meea.org) and is designed to train educators in classroom application of the Project WET (Water Education for Teachers), Project Learning Tree (PLT) and Project WILD curriculum guides.

Projects WET, WILD and PLT are interdisciplinary curriculum supplements that provide a series of activities using water, forests and wildlife as windows into the natural world to increase students' understanding of our complex environment. Participants will receive a booklet that correlates each curriculum guide to the Missouri Show-Me Standards. The interactive hands-on activities include an introduction to each project, a review of the respective project activity guide, an

overview of learning strategies, instruction on environmental education methods, peer teaching of selected activities from the guide and guidelines for activity implementation. In addition, participants will discover how the use of these curriculum guides can improve student scores on the Missouri Assessment Program (MAP). This is your chance to acquire all three of these useful and popular curriculum guides without attending three separate workshops.

Cost and credit: The fee for this workshop is part of your conference registration fee and covers the cost of the HWHP books. The additional four hours of classroom applications (12 hours total) qualifies this workshop for one hour of college credit through Lincoln University at a cost of \$60 (optional), and it is also eligible for the instructional workshop category for MEEA Certification.

Course Information

Location: University of Missouri Campus, Columbia

Date: Oct. 29-31, 2004

College Credit: one hour (LU, fall semester, 2004, CED 497 G)

Fee: The fee for this workshop is part of your conference registration fee and covers the cost of materials. See www.meea.org for registration information.

Show-Me Standards: 1.1, 1.2, 1.5, 1.6, 1.8, 1.10, 2.1, 2.3, 2.5, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.8, 4.1, 4.3, 4.6, CA1, 3, 5, 6, 7, MA1, 2, 3, 4, SC1, 3, 4, 5, 7, 8, SS2, 3, 4, 5, HP3, 6,

Classroom Applications for Volunteer Water Quality Monitoring

This course will be offered as one option within the Missouri Environmental Education Association (MEEA) sponsored "EE Campus" professional development event (See www.meea.org for more information). The Saturday afternoon segment will be outdoors whatever the weather, so be prepared. The course is designed to expand upon the 8 hour Introductory Level training for Volunteer Water Quality Monitoring (VWQM) to incorporate an additional 4 hours of classroom ideas and activities from Healthy Water Healthy People, a Water Quality Educators Guide (see www.healthywater.org, upper elementary through adult). VWQM training alone is available free of charge, generally during the spring months (see www.mostreamteam.org), and is designed to train volunteers to help protect the water quality of Missouri's streams by measuring and submitting data for a wide variety of water quality parameters. This workshop qualifies you as a stream team member

and volunteer water quality monitor.

Participants will receive classroom instruction on physical and biological measures for a stream environment, and then visit a stream nearby to practice gathering the types of data discussed in the classroom. Teachers also will work through a variety of lessons taken from the HWHP guide as they are used to support the VWQM training. All teachers will be officially trained as stream team members and will be eligible for level one training once they have met the introductory training field requirements.

Cost and credit: The fee for this workshop is part of your conference registration fee and covers the cost of the HWHP books. The additional four hours of classroom applications (12 hours total) qualifies this workshop for one hour of college credit through Lincoln University at a cost of \$60 (optional), and it is also eligible for the instructional workshop category for MEEA Certification.

Course Information

Location: University of Missouri Campus, Columbia

Date: Oct. 30-31, 2004

College Credit: one hour (LU, fall semester, 2004, CED 483 G)

Fee: The fee for this workshop is part of your conference registration fee and covers the cost of materials. See www.meea.org for registration information.

Show-Me Standards: MA3, SC3, 4, 5, 7, SS7, HP5, Goal 1: 3, 4, 7, Goal 3: 1, 6, 8, Goal 4: 3, 6

The Land in Literature: Reading the Landscape

Environmental considerations have spawned a diverse and robust body of literature.

Authors with the stature of Thoreau, Emerson, Muir, Carson, and Leopold have all contributed to this field of written expression. This course incorporates formal training in the Leopold Education Project (LEP), a nation-wide effort for helping people understand our connection with the land (see pp. 23-24 of the Fall 2001 issue of Missouri Resources for more information). Along with Rachel Carson's book *Silent Spring* and others, Aldo Leopold's *A Sand County Almanac*



portends the origins of the environmental movement. The environmental movement, in turn, has led to Earth Day celebrations, a host of environmental laws to protect the environment from degradation, and a general awareness of how human existence depends on a healthy global ecosystem.

This course will be beneficial to science, social studies and language arts teachers. You are urged to review any related books you may have and bring them to the workshop. We will be outdoors much of the time so be prepared for the weather. Binoculars, a camera, and field guides to winter botany and wildlife might be useful. Various lodging options are available near the area of the park, including camping at Dr. Edmund A. Babler State Park.

Course Information

Location: Route 66 State Park, Eureka

Date: Nov. 6-7, 2004

College Credit: one hour (LU, fall semester, 2004, CED 498 G)

Fee: \$45 (includes LEP materials, meals and incidentals)

Show-Me Standards: 1.3, 1.5, 1.6, 2.3, 2.4, 3.6, 4.3, CA5, 6, SS2, 5, MA2, SC3, 4, 7, 8

Energy for Missouri: Today and Tomorrow

Have you ever wondered where the energy used on a daily basis in your home comes from? How is it produced? Where do the raw materials come from? What are the environmental and economic impacts of energy use in Missouri?

This course is designed to answer these types of questions and provide a basic understanding of the role of energy use. Current forms of energy use and projections for the changing future of energy in Missouri will be



explored. Participants will discuss the impacts of energy use on both a regional and global level. In addition, the role of energy conservation, alternative fuels, and other innovative practices will be presented. A tour of a local power production facility will be included in course activities. Participants also will be provided with activities to be used in the classroom to promote awareness of energy use and conservation practices.



Course Information

Location: St. Louis

Date: December 4-5, 2004

College Credit: one hour (LU, winter intersession, 2004, CED 499 G)

Fee: \$30

Show-Me Standards: 1.2, 1.3, 1.5, 1.8, 1.10, 2.4, 3.3, 3.6, 4.2, 4.3, 4.7, CA6, SS2, 4, MA1, 2, SC1, 2, 4, 5, 8, HP6

A River of Words About Watersheds

We all live in a watershed. This course is designed to explore the significance of watersheds through prose, poetry, art and science. This course incorporates an introduction to the *River of Words Educator's Guide*. In addition, participants will receive information concerning the River of Words



national poetry and art contest for students in kindergarten through college.

Participants also will investigate the science involved in understanding watersheds. Course participants will experience a series of hands-on activities designed to help them integrate knowledge about watersheds into their individual classrooms.

This course will be beneficial to art, science, social studies and language arts teachers. All participants will receive a copy of the *Discover a Watershed: Watershed Manager Educator's Guide*.

NOTE: This course will be held regardless of weather and requires a moderate amount of physical activity. Enrollment is limited to 30 participants so register early to reserve your place.

Course Information

Location: Montauk State Park, Salem

Date: Jan. 22-23, 2005

College Credit: one hour (LU, spring semester, 2005)

Fee: \$40

Show-Me Standards: 1.4, 1.5, 1.6, 1.9, 1.10, 2.1, 2.2, 2.3, 2.4, 2.5, 3.6, 4.6, CA2, 3, 4, 5, 6, 7, MA1, SC3, 4, 5, 7, 8, SS5, 6, FA1, 5

Teachers, Industry and the Environment (TIE)

This unique course and conference is specifically designed for K-12 science teachers to exchange information on environmental issues with the chemical industry and natural resource professionals. Approximately 70 science teachers



will be selected to attend the workshop. To be eligible for the selection process, teachers must submit a formal application by October 1, 2004. To receive an application form, check the TIE box on the registration form.

Course Information

Location: Columbia

Date: Feb. 10-12, 2005

College Credit: One hour (CMSU, spring semester 2005)

Fee: None

A printable electronic version of this flier is located at:
www.dnr.mo.gov/oac/edcourse.htm

WET, WILD & WOODY (PLT)

This course is being offered in conjunction with the Interface "A" Conference, sponsored by the Missouri Department of Secondary and Elementary Education, and is designed to train educators in classroom application of the Project WET (Water Education for Teachers), Project Learning Tree (PLT), and Project WILD curriculum guides.

Projects WET, WILD and PLT are interdisciplinary curriculum supplements that provide a series of activities using water, forests, and wildlife as windows into the natural world to increase students' understanding of our complex environment. Participants will receive a booklet that correlates the each curriculum guide to the Missouri Show-Me Standards. The interactive hands-on activities include an introduction to each project, a review of



the respective project activity guide, an overview of learning strategies, instruction on environmental education methods, peer teaching of selected activities from the guide, and guidelines for activity implementation. In addition, participants will discover how use of these curriculum guides can improve student scores on the Missouri Assessment Program (MAP). This is your chance to acquire all three of these useful and popular curriculum guides without attending three separate workshops.

NOTE: Enrollment is limited to 30 participants so register early to reserve your place. Interface registration is handled through the University of Missouri Conference Center (see www.dese.mo.gov for details).

Course Information

Location: Tan-Tar-A, Interface A Conference, Osage Beach

Date: Feb. 24-26, 2005

College Credit: one hour (LU spring semester 2005)

Fee: \$50 (PAID AT WORKSHOP) This fee is in addition to the interface registration fee.

Participants must register for the Interface A Conference (see www.dese.mo.gov for details).

Show-Me Standards: 1.1, 1.2, 1.5, 1.6, 1.8, 1.10, 2.1, 2.3, 2.5, 3.1, 3.2, 3.3, 3.4, 3.5, 3.6, 3.8, 4.1, 4.3, 4.6, CA1, 3, 5, 6, 7, MA1, 2, 3, 4, SC1,3, 4, 5, 7, 8, SS2, 3, 4, 5, HP3, 6

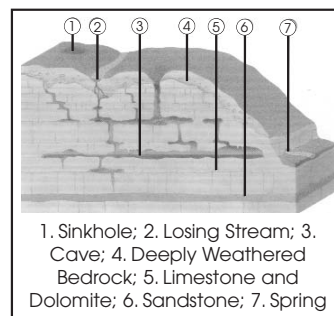
Groundwater Issues: Missouri's Hidden Waters

It is essential that our state's vast groundwater resources be protected from pollution. The course focuses on the dynamics of groundwater in the Ozark region of Missouri. Sessions will include topics on Missouri geology and hydrology, potential groundwater pollution sources, and prevention of groundwater pollution. In addition, participants will tour Ha Ha Tonka State Park and Ha Ha Tonka Spring and other features and geologic landforms associated with groundwater.

This course is offered in conjunction with the Interface Conference for teachers of math and science sponsored by the Missouri Department of Elementary and Secondary Education. You must register for the conference to be eligible to attend this

course. The course registration fee below is in addition to the Interface Conference registration fee. You must be pre-registered for this course.

NOTE: Enrollment is limited to 30 so register early to reserve your place. Interface registration is handled through the University of Missouri Conference Center (see www.dese.mo.gov for details).



Course Information

Location: Tan-Tar-A, Interface B Conference, Osage Beach

Date: Feb. 27 - March 1, 2005

College Credit: one hour (Lincoln University, summer semester, 2005)

Fee: \$30 (PAID AT THE WORKSHOP) This fee is in addition to the interface registration fee.

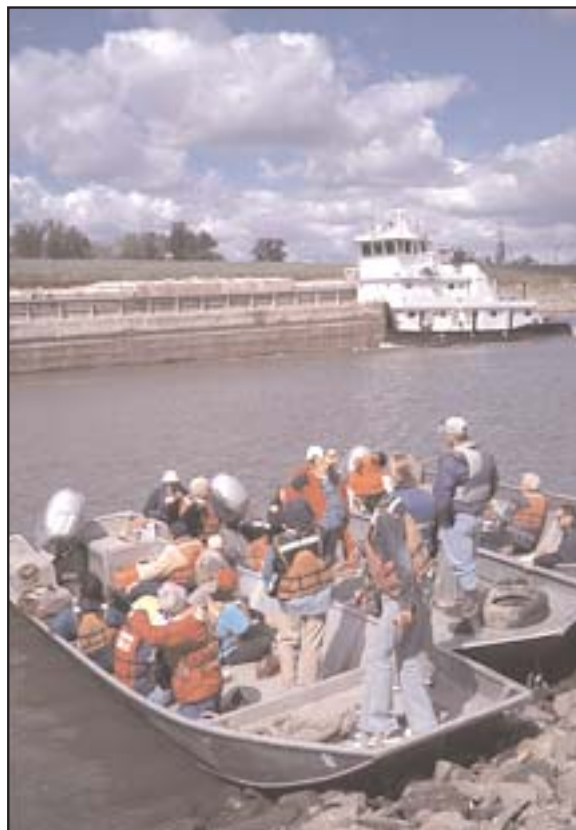
Participants must register for the Interface B Conference.

Show-Me Standards: 1.3, 1.6, 2.3, 3.1, 4.3, SC3, 5, HP3, SS5

BIG RIVER EDUCATIONAL WORKSHOPS

The Department of Natural Resources in cooperation with Living Lands and Waters will be offering a series of free educational workshops for teachers and interested citizens focusing on the function and importance of the big river systems in America. The workshops will provide information on watersheds, human activity's impact on the rivers and river history, as well as providing details of some of the unique activities and uses of the large river systems of our nation. The workshops are also designed to augment the growing stewardship efforts that are developing on our big river systems.

While the primary target audience will be teachers, the general public is welcome, as well as any civic leader wishing to learn more about the big river systems.



GENERAL WORKSHOP CONTENT

- ◆ Watersheds: How they function and a "make and take" watershed model
- ◆ The river as a natural resource: Drinking water use, receiving waters for municipal and industrial wastewater agricultural activities in the flood plain, recreational and commercial fishing, and other recreational aspects
- ◆ Impacts on the river: Nonpoint source pollution (issues and prevention) along with other impacts (solid waste, loss of wetlands, etc.)
- ◆ River stewardship: How to minimize impacts and get involved (adopt a river mile, stream teams, future cleanups, other educational resources, etc.)
- ◆ Boat trips: Whenever practical, to allow participants to observe firsthand some unique aspects of the river (commercial fishing, reforestation efforts, riparian zones, lock and dams, etc.)



The workshops are offered at no charge and we also can arrange group specific workshops upon request. For the latest information please check our Web site at:

<http://www.dnr.mo.gov/oac/river-cleanup.htm>

Or contact: Bryan Hopkins, Environmental Education Specialist, Missouri Department of Natural Resources, Phone: (573) 751-2452 or 1-800-361-4827, E-mail: oac@dnr.mo.gov.

Project WET Workshop

Project WET (Water Education for Teachers) is an environmental education program designed for teachers and other educators working with children from kindergarten through grade 12. The *Project WET Curriculum & Activity Guide* is a source of interdisciplinary instructional activities that are correlated with the Missouri Show-Me Standards. Project WET activities focus on teaching students "how to think" not "what to think."



A 2.5-day college credit course titled WET, WILD and WOODY has been proposed for the

Interface A session February 24-26, 2005 to be held at Tan-Tar-A Resort in Osage Beach, Missouri. In addition, the department has proposed a six-hour Project WET workshop during Interface B, February 27-March 1, 2005.

The Department of Natural Resources is offering additional workshops during both sessions of Interface. See www.dese.mo.gov for more information on the Interface Conference. Topics of other workshops and courses offered by the department include Energy, Groundwater, and Volunteer Water Quality Monitoring.

Please see the Interface conference registration packet for details about registering for these hands-on workshops. The Missouri Department of Elementary and Secondary Education sponsors Interface.

Workshop Information

A Project WET workshop can be scheduled at your school. Please contact the state coordinator Joe Pitts at telephone 1-800-361-4827 to discuss the options available for on-site workshops. The workshop fee is \$15 per person. There is no charge for facilitator services. School districts can be invoiced for multiple workshop fees.

Announcements

Level One Training for Volunteer Water Quality Monitoring (VWQM)

Introductory level training is a prerequisite for this Level One training and is generally offered in the Spring of the year. See www.mostreamteam.org for more information and registration forms. If you have met the

requirements for the Introductory VWQM training, you are eligible to attend one of six Level One workshops scheduled for this fall. There is no charge for this training. Level One training will count toward MEEA certification categories I or II.

Workshop Information

Location: locations vary

Date: Aug. 28, 2004; Sept. 11, 18 and 25, 2004; Oct. 2 and 9, 2004

EE Campus

This is a structured professional development event with planned workshops for formal and non-formal environmental educators who would like to improve environmental literacy, for them-

selves and for their students or clients. The Missouri Environmental Education Association (MEEA) and the University of Missouri sponsor this event. See www.meea.org for more information.

Workshop Information

Location: University of Missouri Campus, Columbia

Date: Oct. 29-31, 2004

Announcements (continued ...)

North American Association for Environmental Education Annual Conference

The theme for this year's conference is Casting a Wider Net for EE. It will be held at the Grand Casino Biloxi Bayview Hotel. See

www.naaee.org for information about this conference. The first two days offer various field trips and meetings for affiliate groups.

Workshop Information

Location: Biloxi, MS
Date: Nov. 6-10, 2004



Missouri Summit on Environmental Literacy

This is a meeting of representatives of a wide range of organizations and agencies that have a vested interest in environmental literacy, and who are seeking to improve networking, building capacity for environmental education, and examining long-range organizational and pro-

grammatic goals. The summit planning committee will meet on October 29, 2004 from 1-4 p.m., just before the "EE Campus" event. Contact Jim Lubbers at <jim.lubbers@dnr.mo.gov> or 800-361-4827 for more information.

Workshop Information

Location: Columbia
Date: Feb. 8-9, 2005



Interface Professional Development Event

The Missouri Department of Natural Resources will be presenting and managing a variety of workshops at this event. See www.dese.mo.gov for more information on this event. One proposed 6-hour presentation is based on the Healthy Water Healthy People materials produced by The Watercourse, Hach

Scientific Foundation and Project WET (www.healthywater.org). This workshop is designed to promote teacher interest and involvement in the Volunteer Water Quality Monitoring (VWQM) program. This workshop does not qualify anyone for any level of formal VWQM training.

Workshop Information

Location: Tan-Tar-A, Osage Beach
Date: Feb. 24-26, 2005 (k-6) and Feb. 27 - March 1, 2005 (7-12)

Nominations Requested

The Conservation Federation of Missouri (CFM) is accepting nominations for the Conservation Leadership Corps (CLC). The CLC is comprised of accomplished high school and college students enrolled in Missouri educational institutions. The purpose of the program is to train and involve students in decision-making processes regarding natural resource conservation and management and to involve them in CFM activities.

Educators are invited to nominate Missouri high school juniors or seniors and college freshmen or sophomores who have exhibited excellent academic achievement, conservation accomplishments and leadership. Students selected will be invited to participate in the CFM Conservation Leadership Corps program at the 2005 annual convention.

Please complete the nomination form below and send it to:

David Murphy, Executive Director
Conservation Federation of Missouri
728 West Main Street
Jefferson City, Missouri 65101



Conservation Leadership Corps (CLC) - Nominations

Student Name: _____

Street or PO Box: _____

City: _____ Zip Code: _____

Telephone Number: _____

Present School: _____

Nominator: _____ Affiliate or Sustaining Member: _____

Street or PO Box: _____

City: _____ Zip Code: _____

E-Mail Address: _____ Telephone Number: _____

Please summarize your reasons for nominating this student on a separate sheet.

NOMINATIONS MUST BE SUBMITTED BY OCTOBER 15, 2004

For information about the CLC contact the Conservation Federation of Missouri at 1-800-575-2322.

Fall/Winter 2004-05 Environmental Education Courses Pre-Registration Form

Please Check Box To Register

- | | |
|--|--|
| <input type="checkbox"/> Archaeology of Missouri, Oct. 2-3, 2004 Fee: \$30 | <input type="checkbox"/> Energy for Missouri, Dec. 4-5, 2004 Fee: \$30 |
| <input type="checkbox"/> Igneous Geology, Oct. 23-24, 2004 Fee: \$30 | <input type="checkbox"/> A River of Words, Jan. 22-23, 2005 Fee: \$40 |
| <input type="checkbox"/> Land in Literature, Nov. 6-7, 2004 Fee: \$45 | <input type="checkbox"/> TIE, Feb. 10-12, 2005 Fee: none |

Name _____ Phone (____) ____-_____

Home Address _____

City _____ State _____ Zip Code (5 + 4) _____

E-mail Address _____

Make a separate check for each course you will be attending, made payable to the name of that course. **NO REFUNDS.** Please mail this form with your check(s) to:

Missouri Department of Natural Resources
Outreach and Assistance Center
Environmental Education
P.O. Box 176
Jefferson City, MO 65102-0176
Phone: 1-800-361-4827 or (573) 751-3443

Please contact staff at the above address if you need special accommodations.

ALL PARTICIPANTS MUST BE PRE-REGISTERED! PLEASE, NO SUBSTITUTIONS.